**LINUX SPECIAL FILE PERMISSIONS**

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| **SPECIAL PERMISSION** | **EFFECT ON FILES** | **EFFECT ON DIRECTORIES** | **EXAMPLE** |
| **setuid**  **chmod symbolic mode = u + s**  **mode = 4**  **- --s --- --- - = underlying bit on**  **- --S --- --- - = underlying bit off** | 1. File **executes as the user that owns the file** not as the user who ran the file.  2. **Only affect** **executable binary files**.  3. No effect on general files which are not binary executables such as scripts.  4. Indicated by “**s/S**” in the **execute position of user’s permissions**. | 1. No effect. | 1. /usr/bin/passwd  2. /bin/ping |
| **setgid**  **chmod symbolic mode = g + s**  **mode = 2**  **- --- --s --- - = underlying bit on**  **- --- --S --- - = underlying bit off** | 1. File **executes as the group that owns the file** not as the group of the user who executed the file.  2. **Only** **affect executable binary files**.  3. No effect on general files which are not binary executables such as scripts.  4. Indicated by “**s/S**” in the **execute position of group’s permissions**. | 1. Newly created files will **inherit group of their parent directory**.    2. Indicated by “**s/S**” in the **execute position of group owner permissions**. | 1. /usr/bin/wall  2. Used in collaboration when all the files are owned by different users of same group.  3. It **can be used with sticky bit** to create a collaborative directory where all files created by all the users have the same group ownership but the users can only write/modify their own files and all other users can read the files due to the common group ownership of files. |
| **sticky**  **chmod symbolic mode = u + t**  **mode = 1**  **- --- --- --t - = underlying bit on**  **- --- --- --T - = underlying bit off** | 1. No effect. | 1. Users with write permission on the directory **can only rename or remove files that they own**.  2. Indicated by “**t/T**” in the **execute position of other owner permissions**. | 1. /tmp  2. Used for shared directories to prevent users from renaming or deleting each other’s files. |